

# NOTES ON JAPANESE LINYPHIIDAE, I.

By

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## Synopsis

SAITO, Hiroshi (3-772, Asahi-cho, Ashikaga, Tochigi 326, Japan): Notes on Japanese Linyphiidae, I. *Acta arachnol.*, 31: 17-26 (1982).

According to LOCKET & MILLIDGE (1953) and some other authors, I treated the linyphiid spiders as a single family, and placed the genus *Strandella* OI in Erigoninae because of its tracheal structure. Two new species of the genus *Strandella* from Japan are described under the name of *S. yaginumai* and *S. fluctimaculata*. A key to the species of *Strandella* is given.

In the course of the study on linyphiid spiders of Japan two new species belonging to the genus *Strandella* were found. The description and illustration of them are given here as the first part of the study.

## Genus *Strandella* OI

*Strandella* OI, 1960, J. Inst. Polytech. Osaka City Univ., (D), 11: 188.

Type-species: *Oedothorax quadrimaculatus* UYEMURA, 1937, *Acta arch.*, 2(4): 150.

The genus *Strandella* of the family Linyphiidae established by OI for the reception of *Oedothorax quadrimaculatus* UYEMURA has hitherto been considered as a monotypical genus which is represented by a Japanese species "quadrimaculata". PAIK (1965) described a new species, *Phaulothrix pargongensis*, from Mt. Pargong in Korea, but recently he (1978) transferred it to the genus *Strandella*. YAGINUMA (1972) pointed out the difference between the UYEMURA's male of the original description and the OI's male (redescribed as *quadrimaculata*), discussing the taxonomical status of the latter. As a result of my careful examination, I also have confirmed that the OI's male was not the true *quadrimaculata*.

Erigonid and linyphiid spiders are generally treated by many arachnologists as two separate families. And, the genus *Strandella* has hitherto been considered as a member of the family Linyphiidae because of its chaetotaxy. But, LOCKET & MILLIDGE (1953), who already treated the European linyphiid spiders as a single family, divided the family Linyphiidae mainly on morphological grounds into two subfamilies, Erigoninae and Linyphiinae. Later, the researches by MERRETT (1963) and by MILLIDGE (1977) revealed a strong resemblance in the palpal conformation of the male of these two groups, and BLEST (1978) was of the opinion that erigonine and linyphiine spiders should be treated as a single family on the basis of the tracheal arrangement in 121 species of European linyphiid spiders. I, therefore, prefer to follow them in treating these two groups of spiders as a single family.

According to my opinion, the genus *Strandella* established by OI should be treated as a genus of the subfamily Erigoninae, having the medial trunks which branch into bundles of small tracheoles. In European species the lateral trunks are confined to the abdomen; those of *Strandella*, however, are not confined to the abdomen as shown in Fig. 24. They invade the prosoma together with the bundles of small tracheoles. In general appearance and structure these spiders resemble *Phaulothrix* and *Hilaira*, but can easily be separated from them by the following points: the male has a distinct caphalic lobe and is provided with a deep transversal depression between the lobe and the ocular area; the abdomen is yellowish white to dark gray with some irregular black spots, or a pair of wave-like black vertical bands on dorsum; the palpal tibia of the male is widened distally and its dorsal margin is divided into two or three apophyses.

At present, three species of the genus *Strandella* are known from Japan and one species is known from Korea. They may be distinguished from one another by the following key.

#### **Key to the Jaranese and the Korean species of the genus *Strandella***

1. Males ..... 2
- Females ..... 5
2. Palpal tibia with three apophyses ..... 3
- Palpal tibia with two apophyses ..... *fluctimaculata* n. sp.
3. The middle apophysis of palpal tibia viewed from above situated on the dorsal margin of tibia ..... 4

- The middle apophysis of palpal tibia viewed from above situated under the notch between the two dorsolateral apophyses; viewed from the side situated midway between tibia and cymbium .....*yaginumai* n. sp.
- 4. All tibial apophyses situated close to each other .....*pargongensis* (PAIK)
- All tibial apophyses broadly separated from each other .....  
.....*quadrimalculata* (UYEMURA)
- 5. Abdomen with some pairs of irregular black spots on dorsum ..... 6
- Abdomen with a pair of black vertical bands on dorsum .....  
.....*fluctimalculata* n. sp.
- 6. Epigynum without scape..... 7
- Epigynum with a scape which is spoon-shaped distally, as shown in Fig. 9.....*yaginumai* n. sp.
- 7. Epigynum as long as wide.....*quadrimalculata* (UYEMURA)
- Epigynum wider than long .....*pargongensis* (PAIK)

***Strandella yaginumai* n. sp.**

Japanese name: Hime-yotsuboshi-saragumo

(Fig. 3, 7, 9, 13, 17-20)

Male (holotype). Body length 3.13 mm; Cephalothorax 1.53 mm long, 1.10 mm wide.

Carapace yellowish amber, more or less shaded with gray, lighter on the cephalic lobe and margins, and with darker cervical grooves and radial furrows; viewed from above rather long, evenly rounded on the sides with only a slight constriction at the cervical grooves. Cephalic lobe bluntly pointed in front, with the sides nearly straight. Carapace viewed from the side rather steeply ascending behind, then gradually ascending to the base of cephalic lobe. The cephalic lobe rather high, thinly covered with a pubescence of white hairs, arched over the top of the lobe, the front convex and somewhat overhanging. Posterior eyes in a recurved line, subequal in size, the median separated by about two times of the diameter. Anterior eyes in a straight line, the medians smaller than the laterals, separated by about the diameter and from the laterals by a little more than the diameter. Clypeus longer than the length of ocular area and strongly concave due to the protuberance of the ocular area. Chelicerae reddish brown, with five promarginal and four retromarginal teeth. Endites yellowish brown, with the tips lighter in color. Labium dusky brown. Sternum brownish yellow,

darker at the margin, heart-shaped, convex, nearly as wide as long; the posterior tip separating coxae IV by about the diameter. Legs yellowish brown. All tibiae with two dorsal spines, and their position (proximal and distal spines): I=0.25 and 0.72, II=0.25 and 0.74, III=0.23 and 0.67, IV=0.28 and 0.66. All metatarsi with a trichobothrium, its position: Tm I 0.84, Tm II 0.87, Tm III 0.74, Tm IV 0.78.

Measurements (mm) of legs are as follows:

Leg	Fem.	Pat. & Tib.	Met.	Tar.	Total
I	1.63	1.88	1.65	0.80	5.96
II	1.53	1.80	1.58	0.75	5.66
III	1.20	1.33	1.20	0.68	4.41
IV	1.45	1.65	1.55	0.65	5.30

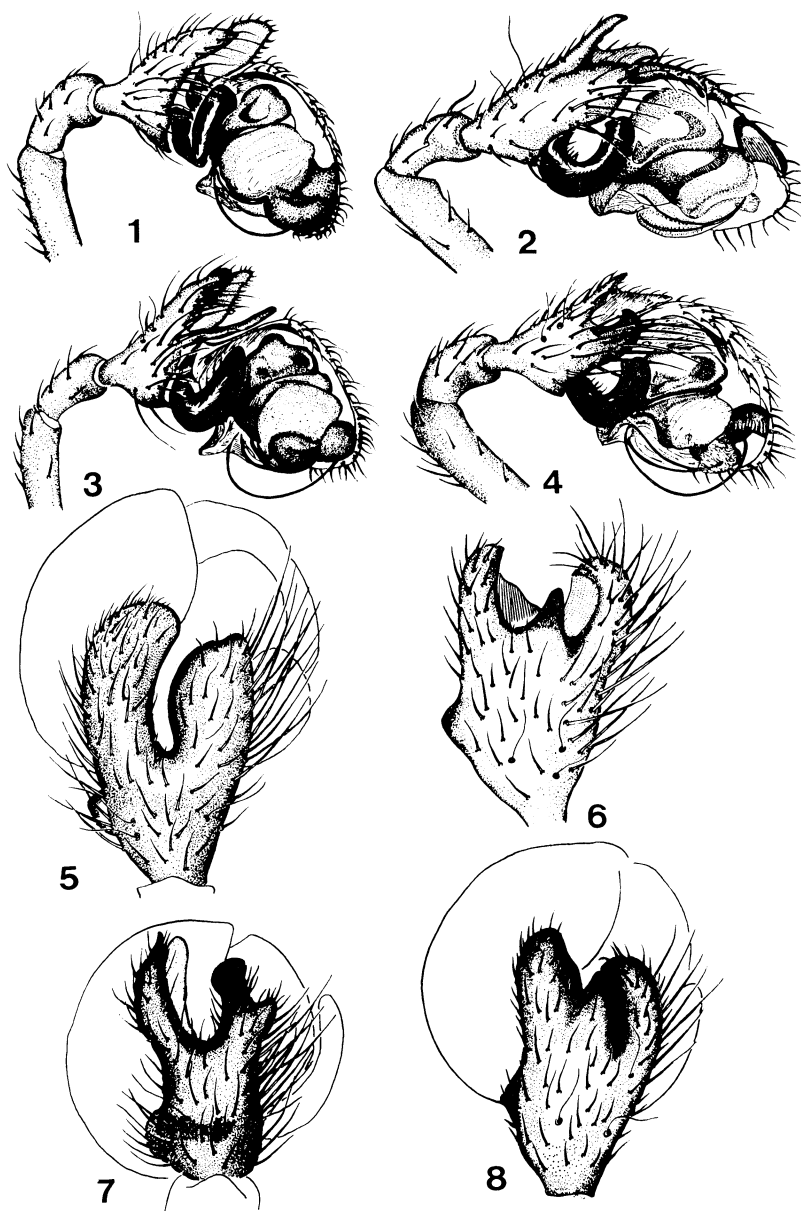
Abdomen yellowish white, highest in front and pointed behind, with two pairs of large black spots on dorsum. According to individuals the spots are variable as shown in Figs. 17-20.

Palpal tibia longer and wider than the patella, provided with three apophyses, of which the middle one arises between tibia and cymbium. Paracymbium stout, strongly curved, with several small hairs on the distal part and incurved point. The embolus long and slender, and coiled.

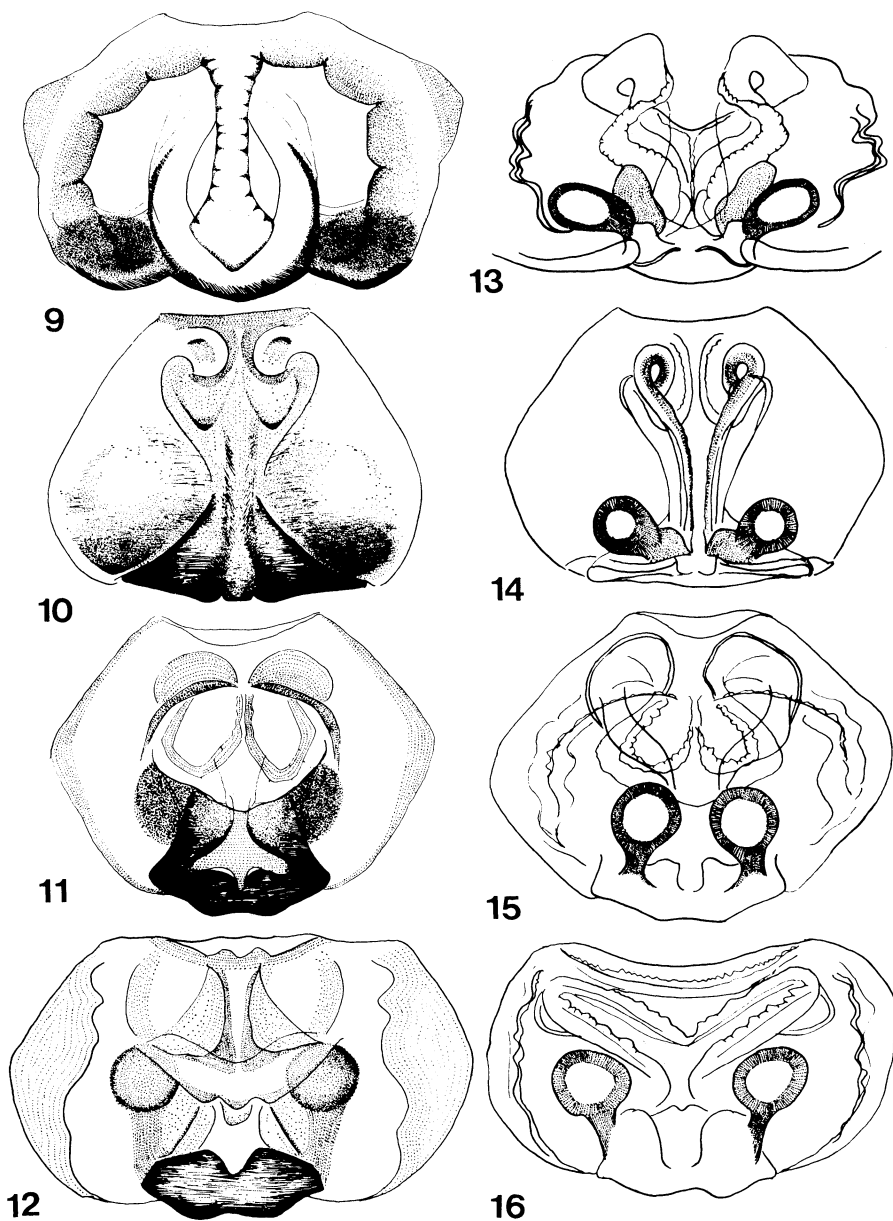
Female. Essentially similar to the male in general form and appearance, but lacks cephalic lobe, and the head being only slightly raised. The epigynum resembles that of the typical *Centromerus* species with a scape which is marked with many transvers wrinkles, and shows a pair of receptacula through the integument.

Type-series. Holotype: ♂, 2-VI-1979, Matsuda, Ashikaga, Tochigi Pref., H. OHKAWA & H. SAITO leg. Paratypes: 13♂, 14♀, same data as the holotype; 3♂, 21~23-V-1967, Omogo, Ehime Pref., C. OKUMA leg.; 2♂, 1♀, 9-VI-1967, Nikko, Tochigi Pref., T. HAMAMURA leg.; 3♂, 5♀, 11-VI-1967, Ebino, Miyazaki Pref., R. HAMADA leg.; 2♀, 6-VI-1976, Yumoto, Nikko, Tochigi Pref., H. SAITO leg.; 3♀, 7-VII-1977, do.; 4♀, 21-VII-1976, Mt. Asakusadake, Niigata Pref., M. MIZUSAWA leg.; 2♀, 30-VII-1978, Chuzenji, Nikko, Tochigi Pref., H. SAITO leg.; 1♂, 5♀, 20-VI-1980, do.; 1♂, 21-VI-1981, Kamiteraoka, Nishinemura, Iwate Pref., S. KATAOKA leg.

The holotype and one of the paratypes are preserved in the collection of Arachnological Society of East Asia, Ohtemon-Gakuin university, Osaka. The

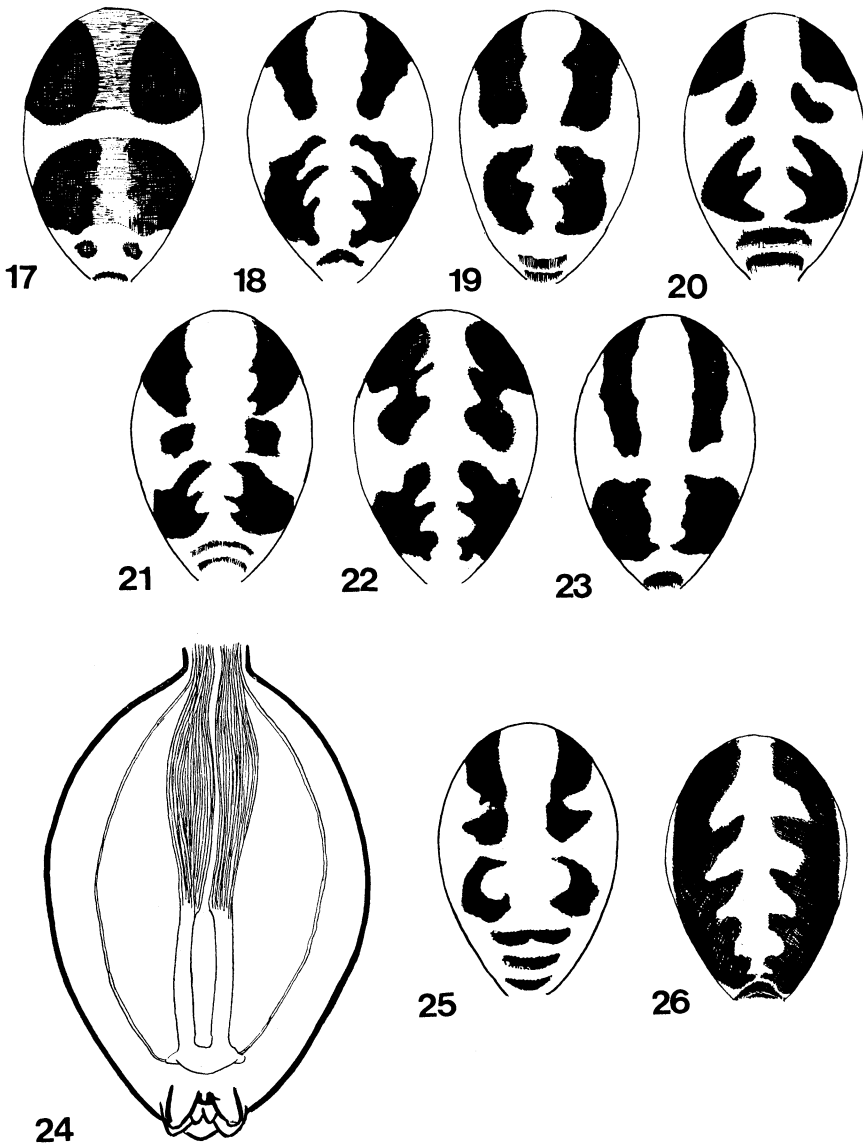


Figs. 1-4. Male palps, viewed from outside: 1. *S. fluctimaculata* n. sp.; 2. *S. quadrimaculata*; 3. *S. yaginumai* n. sp.; 4. *S. pargongensis*.  
 Figs. 5-8. Male palpal tibiae, viewed from above: 5. *S. fluctimaculata* n. sp.; 6. *S. quadrimaculata*; 7. *S. yaginumai* n. sp.; 8. *S. pargongensis*.



Figs. 9-12. Female epigynes: 9. *S. yaginumai* n. sp.; 10. *S. fluctimaculata* n. sp.; 11. *S. quadrimaculata*; 12. *S. pargongensis*.

Figs. 13-16. Vulva, dorsal view: 13. *S. yaginumai* n. sp.; 14. *S. fluctimaculata* n. sp.; 15. *S. quadrimaculata*; 16. *S. pargongensis*.



Figs. 17-20. Varieties of marking on the female abdomen of *S. yaginumai* n. sp.

Figs. 21-23. Varieties of marking on the female abdomen of *S. quadrimaculata*.

Fig. 24. The tracheal arrangement in the genus *Strandella*.

Figs. 25-26. Marking on the female abdomen: 25. *S. pargongensis*; 26. *S. fluctimaculata* n. sp.

remaining paratypes are in my private collection.

Remarks. This new species strongly resembles *S. quadrimaculata* (UYEMURA) (Figs. 2, 6, 11, 15, 21~23) from Japan and *S. pargongensis* (PAIK) (Figs. 4, 8, 12, 16, 25) from Korea, but is distinguishable from them by the form of male palpal tibia.

***Strandella fluctimaculata* n. sp.**

Japanese name: Sazanami-saragumo

(Figs. 1, 5, 10, 14, 26)

Male (holotype). Body length 2.63 mm; Cephalothorax 1.13 mm long, 0.89 mm wide.

Carapace brown, strongly suffused with gray, lighter on the cephalic lobe, and with darker radiating lines. Carapace viewed from above evenly rounded on the sides, with a very slight constriction at the cervical groove, bluntly rounded in front; the cephalic lobe is similar to that of *yaginumai* but more pointed in front. Carapace viewed from the side rather steeply ascending behind to the base of the cephalic lobe. Cephalic lobe gradually ascending to the top of the lobe, the front convex and somewhat overhanging. The median ocular area narrower in front. Posterior eyes arranged in a recurved line, subequal in size; the median eyes separated by about two times of the diameter. Anterior eyes arranged in a straight line; the median eyes smaller than the lateral, separated by about the diameter and from lateral by about the diameter. Clypeus is like that of *yaginumai*, but is narrower. Chelicerae dark brown, with five promarginal and retromarginal teeth. Endites light brown, with the tips lighter in color. Labium dusky brown. Sternum brown suffused with gray, and narrowly margined with blackish brown, heart-shaped, convex, as wide as long, produced posteriorly into a truncate point between the hind coxae which are separated by the diameter. Legs light brown. All tibiae with two dorsal spines, and their position (proximal and distal spines): I=0.25 and 0.77, II=0.23 and 0.75, III=0.20 and 0.65, IV=0.21 and 0.71. All metatarsi with a trichobothrium, its position: Tm I 0.74, Tm II 0.82, Tm III 0.65, Tm IV 0.72.

Measurements (mm) of legs are as follows:



Leg	Fem.	Pat. & Tib.	Met.	Tar.	Total
I	1.20	1.38	1.05	0.58	4.21
II	1.13	1.35	1.05	0.60	4.13
III	0.93	1.00	0.80	0.45	3.18
IV	1.10	1.25	1.03	0.53	3.91

Abdomen gray, with a pair of black vertical bands on dorsum.

Palpal tibia longer than patella, widened distally: the dorsal margin divided into two apophyses. Paracymbium stout, strongly curved and truncated distally.

Female. Similar to the male, but the head is not produced into a lobe. The epigynum is represented in Fig. 10.

Type-series. Holotype: ♂, 10-VII-1970, Tenninkyō, Mt. Daisetsu, Hokkaido, Y. NISHIKAWA leg. Paratypes: 1♂, 3♀, same data as the holotype; 1♂, 1♀, 7-VII-1977, Yumoto, Nikko, Tochigi Pref., H. SAITO leg. 1♂, 22-VII-1981, Mt. Kurodake, N. YASUDA leg.; 1♀, 21-VIII-1981, do.

The holotype and one of the paratypes are preserved in the collection of Arachnological Society of East Asia, Ohtemon-Gakuin University, Osaka. The other paratypes are deposited in the collection of Tochigi Prefectural Museum, Utsunomiya and in my private collection.

Remarks. This species is very similar to preceding species in the structure of male palp, but differs in the form of the female epigynum.

#### Acknowledgements

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#### 摘 要

斎藤 博 (〒326 栃木県足利市旭町 3-772): 日本産サラグモ科の知見 I.

従来, わが国で独立の科として扱われて来たサラグモ科とコサラグモ科を1科として扱う立場を取った。また *Strandella* 属の種を調査し, この属に新たな2種を記載し, それらを含めて日本及び韓国産の種の検索を付した。更に, *Strandella* 属をその気管構造に基づき コサラグモ亜科に入れた。

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